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ABSTRACT

Path analysis was used to test the influence of writing self-efficacy, self-concept, apprehension, and aptitude on the essay-writing performance of 181 ninth-grade students in a public high school in the southwestern United States. A model that also included gender accounted for 53% of the variance in performance. As hypothesized, both aptitude and students' own confidence had strong direct effects on performance. Aptitude also had a strong direct effect on self-efficacy, which largely mediated the indirect effect of aptitude on performance. Self-efficacy had a strong direct effect on apprehension, which, in turn, had a weak direct effect on performance. Although girls and boys did not differ in aptitude or performance, girls expressed less confidence in their writing. Additionally, Hispanic students had lower performance scores as well as lower levels of confidence and self-concept and higher apprehension. Results support the hypothesized role of self-efficacy in A. Bandura's (1986) social cognitive theory. (Contains 47 references, 4 tables, and 1 figure of data.) (Author/RS)

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ED 384 049

RUNNING HEAD: WRITING SELF-EFFICACY

THE ROLE OF SELF-EFFICACY BELIEFS IN THE WRITING PERFORMANCE OF ENTERING HIGH SCHOOL STUDENTS: A PATH ANALYSIS

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THE ROLE OF SELF-EFFICACY BELIEFS IN THE WRITING PERFORMANCE OF ENTERING HIGH SCHOOL STUDENTS: A PATH ANALYSIS

Abstract

Path analysis was used to test the influence of writing self-efficacy, self-concept, apprehension, and aptitude on the essay-writing performance of 181 9th grade students. A model that also included gender accounted for 53% of the variance in performance. As hypothesized, both aptitude and students' own confidence had strong direct effects on performance. Aptitude also had a strong direct effect on self-efficacy, which largely mediated the indirect effect of aptitude on performance. Self-efficacy had a strong direct effect on apprehension, which, in turn, had a weak direct effect on performance. Although girls and boys did not differ in aptitude or performance, girls expressed less confidence in their writing. Additionally, Hispanic students had lower performance scores as well as lower levels of confidence and self-concept and higher apprehension. Results support the hypothesized role of self-efficacy in A. Bandura's (1986) social cognitive theory.

THE ROLE OF SELF-EFFICACY BELIEFS IN THE WRITING PERFORMANCE OF ENTERING HIGH SCHOOL STUDENTS: A PATH ANALYSIS

According to social cognitive theory, people's judgments of their confidence in their capabilities to accomplish specific tasks are influential arbiters in human agency (Bandura, 1986). In part, this is because these judgments of self-efficacy are hypothesized to mediate the effect of other influences, such as aptitude or previous achievement, on a particular performance. In academic settings, for example, the confidence that students have in their own capability helps determine what they do with the knowledge and skills they actually possess. Consequently, other influences on academic performances are, at least in part, the result of what students actually believe they can accomplish.

Students develop this sense of confidence from varied sources, the most notable being the information they obtain from their previous achievements. These achievements are themselves strong predictors of subsequent performance. Nonetheless, because "people's perceptions of their efficacy touch, at least to some extent, most everything they do" (Bandura, 1984, p. 251), judgments of one's own confidence are both strong predictors of academic performances and important motivational factors.

This is not to argue that one's confidence directly "causes" particular academic outcomes. Rather, confidence judgments affect what students do by influencing the choices they make, the effort they expend, the persistence and perseverance they exert when obstacles arise, and the thought patterns and emotional reactions they experience. A strong sense of confidence, for example, may serve a student well when writing an essay, not because it causes her to be a better writer, but because it engenders greater interest in and attention to writing, stronger effort, and

greater perseverance in the face of adversity. Because of her self-confidence, she is also likely to feel less apprehensive and have stronger feelings of self-worth about her writing. For these reasons, Bandura (1984, 1986) described self-efficacy as a *mediating* mechanism of personal agency--mediating between the prior influences that are the sources of its creation and subsequent behavior. Affective factors such as the anxiety and self-concept beliefs associated with specific academic areas are considered *common mechanisms* of personal agency, for they, like self-efficacy, also influence academic outcomes. However, Bandura (1986) argued that the influence of these mechanisms on academic performances is largely due to the confidence with which students approach academic tasks. This predictive and mediational role of self-efficacy has received extensive support from a growing body of findings from diverse fields (see Multon, Brown, & Lent, 1991, for meta-analysis of research on the relationship between self-efficacy beliefs and academic outcomes). One academic area that has received scant attention from self-efficacy researchers, however, is that of composition. This is an unfortunate omission, given the important role that writing skills play at all levels throughout the academic curriculum.

Beliefs About Writing

For the past three decades, researchers in the field of composition have focused on the processes that writers engage in as they compose a text (Faigley, 1990; Hairston, 1990). Cognitive processes have received particular attention, as investigators have attempted to understand the thought processes underlying the compositions of students (e.g., Emig, 1979; Flower & Hayes, 1981; Scardamalia, Bereiter, & Goelman, 1982). Hull and Rose (1989) noted that, the more that researchers learned about the relationship between cognition and writing, the more complex the relationship seemed to be. Recent researchers have attempted to address this

complexity by investigating the connection between affective factors and writing performance (e.g., Beach, 1989; Elbow, 1993). For example, Faigley, Cherry, Jolliffe, and Skinner (1985) maintained that beliefs and attitudes exert a powerful influence on writing. With the exception of writing apprehension, however, self beliefs about writing have received little attention from researchers in the field of composition. Beach (1989) found self-efficacy beliefs a particularly promising avenue of research for informing writing instruction.

The few researchers who have investigated self-efficacy beliefs and essay-writing agree that the two are related. For example, Meier, McCarthy, and Schmeck (1984) reported that writing self-efficacy predicted the writing performance of undergraduates, but their use of stepwise regression analyses prevented them from exploring the nature of the relationships among self-efficacy, apprehension, aptitude, and performance. McCarthy, Meier, and Rinderer (1985) identified and defined 19 writing skills and asked undergraduates whether they could demonstrate them. They administered this instrument and three others: an anxiety measure, a questionnaire to assess locus of control orientation, and a cognitive processing inventory. The researchers conducted two studies with the same students and reported that only self-efficacy--the confidence that students had in their writing skills--was related to their holistically scored essay scores on the first study; self-efficacy and writing anxiety both correlated with essay scores on the second. The relationship between self-efficacy and essay scores was a moderate .33.

Shell, Murphy, and Bruning (1989) also assessed the confidence of undergraduates to perform certain writing skills. They reported a significant correlation between students' confidence in their writing skills and their holistic score on a 20-minute essay (.32). Pajares and Johnson (in press) studied the writing self-efficacy, apprehension, and perceived value of writing

of undergraduates and reported that a regression model accounted for 68% of the variance in writing performance. Only the students' sense of confidence and a preperformance essay score were significant predictors.

It bears noting that the criteria that previous investigators have used to score essays differed from that on which students made their confidence judgments. That is, the specific writing skills on which students were asked to rate their confidence were not the same as the skills on which the criteria for holistic assessment were based. Bandura (1986) warned that judgments of self-efficacy should specifically correspond with the assessed performance. For this reason, either self-efficacy measures should be tailored to the criterial task being assessed and the domain of functioning being analyzed or vice-versa. When these guidelines are not followed, one should expect lower correspondences between self-efficacy and performance scores (see Pajares & Miller, in press).

Bandura (1986) also argued that anxiety is largely determined by the confidence individuals bring to a task, for it is only when people believe they cannot control events that they have reason to fear them. Efficacy beliefs predict "how well people cope with threats and how much fear arousal they experience" (p. 321). In other words, students who are confident in their writing capabilities should experience less apprehension when faced with a writing assignment than should students who believe they are poor writers. Statistically, self-efficacy should continue to predict related academic performances when the effects of anxiety are controlled, whereas the effect of anxiety should diminish when confidence judgments are controlled.

Writing apprehension, a construct created by Daly and Miller (1975a) that describes a form of writing anxiety, has been the focus of various studies (e.g., Daly, 1978; Daly & Wilson,

1983). Daly and Miller (1975b) reported significant correlations between apprehension and SAT-verbal scores (.19), writing self-efficacy, globally operationalized as "perceived likelihood of success in writing" (.59), and willingness to take additional writing courses (.57). They also found that males were significantly more apprehensive than females. Findings on the relationship between writing apprehension and writing are inconsistent, with correlations ranging from nonsignificance to $p < .001$. Faigley, Daly, and Witte (1981) found that the relationship was significant when writing was assessed using a standardized test but not necessarily when an essay was used (only one of two samples was significant). McCarthy et al. (1985) failed to find a relationship between writing apprehension and either writing self-efficacy or performance in the first of her studies.

Another affective variable considered a strong predictor of academic outcomes is a student's self-concept specific to a related academic area (Marsh, 1992a). The conceptual difference between self-efficacy and self-concept beliefs is not always clear. Some researchers use the terms synonymously; others write of students' self-concept "of ability" in academic areas, i.e., basically generalized academic self-efficacy (e.g., Bachman & O'Malley, 1986; Feather, 1988). Confidence is clearly one component of self-concept, but Bandura (1986) argued that the two constructs represent different phenomena and should not be mistaken for each other. Self-efficacy is a context-specific assessment of competence to perform specific tasks--one's judgment of capability to execute specific behaviors in specific situations. Self-concept is not measured at that level of specificity and includes beliefs of self-worth associated with one's perceived competence. Although the relationship between self-concept and self-efficacy and their

influence on performance have been investigated in other academic areas (e.g., Pajares & Miller, 1994), researchers have yet to investigate their influence in the area of writing.

The few investigations to explore the influence of self-efficacy beliefs on writing have been correlational. As such, cause and effect relationships have been difficult to disentangle. More complex causal models with which to test hypothesized relationships--such as structural equation modeling or path analyses--have not been constructed. Moreover, samples have been drawn from college populations. The purpose of this study was to explore the predictive and mediational role of the writing self-efficacy beliefs of first-year high school students so as to inform theoretical concerns and clarify the relationships among variables hypothesized to be or previously found related to writing. Specifically, we investigated the influence of writing self-efficacy, writing self-concept, and writing apprehension on students' essay-writing performance using a path analysis model with relationships hypothesized from social cognitive theory and prior research findings. In addition, the model controlled for the priorly determinant effects of gender and previously assessed writing aptitude. Controlling for aptitude provides a particularly stringent test of the predictive value of self-efficacy judgments, given that preassessed ability should be highly predictive of such judgments and is generally acknowledge to be the strongest predictor of subsequent performance. The path analysis model is illustrated in Figure 1.

Methods and Data Source

Participants and Procedures

Participants were 181 9th grade students in a public high school in the Southwest (102 girls, 79 boys; 109 non-Hispanic White, 52 Hispanic/Mexican American, 12 African American, 6 Asian American). Although the sample included a large proportion of Hispanic students, none

had been identified as Limited in English Proficiency (LEP) or were deemed in need of special language instruction. All Hispanic students were native English speakers. Students in the study were enrolled in regular or advanced language arts classes. Instruments were group administered in individual English classes during two class periods. During the first period, students were asked to complete the self-efficacy, self-concept, and apprehension instruments. During the second, they were asked to write a 30-minute essay. These procedures were similar to those used by writing self-efficacy researchers (e.g., Pajares & Johnson, in press; Shell et al., 1989)

Instrumentation

Writing performance. We asked students to write a 30-minute essay entitled "My Idea of a Perfect Day." Clearly, assessing students' writing is not an objective task, as it involves an inference by the reader of the quality of a written work. This inference involves possible biases and interpretations that can make the assessment an unreliable reflection of actual competence. Researchers in the field of composition believe that, although a timed, in-class writing sample is an imperfect reflection of writing ability, it is the most reliable measure available (Foster, 1983). Holistic scoring by expert readers provides a reasonable means to assess writing performance, is subject to interrater reliability checks, and, when standardized procedures are followed, provides consistent results (Hillocks, 1986). Consequently, essays were scored by the researchers using holistic scoring with a 6-point scale following guidelines prescribed by Wolcott (1989). Scorers were at all times unaware of student identities, and both had spent a sizeable portion of their professional lives as teachers of high school English composition. Consistent with guidelines of social cognitive theory, criteria for scoring were the same as those on which students were asked to assess their writing self-efficacy, i.e., in terms of students' demonstration of grammar, usage,

composition, and mechanical skills. When scorers' judgments differed, a student's final score was the average of the two scores. Interrater reliability was .87.

We operationalized writing self-efficacy as students' judgments of their competence in writing, specifically their judgments that they possess various composition, grammar, usage, and mechanical skills. The Writing Skills Self-Efficacy scale was developed by Shell et al. (1989) and consists of 8 items that ask students to rate their confidence that they can perform certain writing skills (e.g., "correctly punctuate a one page passage;" "organize sentences into a paragraph so as to clearly express a theme"). Students can provide any score from 0 to 100 as a measure of their self-efficacy for each skill. Shell et al. reported reliability scores of .95 for the scale and, and factor analysis showed positive and above .40 correlations between items and scale scores. We obtained a Cronbach's alpha coefficient of .91.

Writing apprehension describes "a person's tendencies to approach or avoid situations perceived to potentially require writing accompanied by some amount of perceived evaluation" (Daly & Wilson, 1983, p. 327). We used the Writing Apprehension Test (Daly & Miller, 1975), a 26-item inventory used extensively and generally regarded a reliable measure of writing anxiety (sample item: "I am afraid of writing essays when I know they will be evaluated.") Reed, Burton, and Vandett (1988) found the instrument reliable but suggested that the 5-point scale be reduced to four points by removing the uncertain response. That adjustment was made for this study (also see Pajares & Johnson, 1994). We obtained a Cronbach's alpha coefficient of .93.

Writing self-concept. We adapted the verbal scale of the Self Description Questionnaire III (SDQIII), a 180-item self-concept measure consisting of 13 scales and developed to assess the self-concept of adolescents (Marsh, 1992b). All items were reworded to reflect self-concept

specific to writing (e.g., "At school, my friends come to me for help in writing."). We obtained a Cronbach's alpha coefficient of .87.

Writing aptitude. Three assessments of writing aptitude were made--the level of the language arts class in which the student was enrolled; teacher ratings of students' writing aptitude; and scores from a state-wide, holistically scored writing assessment. State-wide assessment scores were selected as the aptitude measure for three reasons: (a) they most closely resembled the writing performance measure; (b) they correlated strongly with the other two aptitude assessments (.70 with ratings; .57 with level); and (c) they correlated strongly with writing performance (.60).

Data Analysis

As we have already observed, previous findings in the area of writing have been primarily correlational. Consequently, causal inferences have not been possible. Path analysis techniques are used to examine direct and indirect effects between variables, thus enabling such inferences to be made, if cautiously. In essence, they "allow us to move beyond simple or multiple correlations to testing the causal ordering of these variables that is hypothesized on the basis of self-efficacy theory" (Hackett, 1985, p. 50). Cook and Campbell (1979) suggested that they are especially appropriate when "theoretical, empirical, and commonsense knowledge of a problem" (p. 307) provides a defensible mapping of the variables in the model and their hypothesized links. Path analyses are, therefore, especially appropriate in investigations in which the tenets of social cognitive theory and previous findings are such that hypothesized relationships have strong theoretical and empirical support.

The path model tested was as follows: Gender was hypothesized to influence all variables; writing aptitude was hypothesized to mediate the influence of gender and influence the remaining variables; writing self-efficacy was hypothesized to mediate the influence of gender and aptitude on both the performance task and two common mechanisms--writing apprehension and writing self-concept; the common mechanisms were hypothesized to influence performance directly (see Figure 1). The model was fully specified; that is, a variable was hypothesized to influence all variables preceding it within the model. In addition, no competing model was tested and, consequently, no test for goodness of fit between models was necessary.

Results

Writing self-efficacy scores ranged from 5 to 100. If we construe the score as a self-assigned grade (possible scores ranged from 0 to 100), the mean of 75 per item suggested that students were reasonably confident about their writing ability, assigning themselves the equivalent of a solid C. Self-concept scores ranged from 15 to 78 (minimum=10; maximum=80) with a mean of 49.0, or 4.9 on the 8-point Likert scale, indicating that a positive self-concept statement was "more true than false." Apprehension scores ranged from 30 to 93 (minimum=26; maximum=106), with a mean of 60.4, or 2.32 on the 4-point scale, very nearly the mid-point. The average performance score was 3.7 on the 6-point scale.

The magnitude of the correlations between all independent variables and writing performance, as well as that between these variables and writing self-efficacy, was mostly consistent with those of previous investigations (see Table 1). One exception was the strong relationship between writing self-efficacy and performance (.60), which was higher than has

previously been obtained. This was likely due to the raters' use of the self-efficacy items as the criteria for scoring the essays.

As was the case in Pajares and Miller's (1994) investigation of math self-efficacy, the very strong correlation between self-concept and anxiety (.88) resulted in multicollinearity. When independent variables in a multiple regression analyses are multicollinear, this creates instabilities in the parameter estimates that tend to weaken their effect. In essence, this would mean that retaining both variables in the model would weaken the effect of each. Consequently, we removed writing self-concept from the path analysis, a choice guided by the prominence of writing apprehension in the writing research literature. Further analyses showed that no other correlation was high enough to create an instability in the parameter estimates of the path analysis.

Table 2 provides a decomposition of effects from the path analysis. The independent variables accounted for 53% of the variability in performance, $F(4, 173) = 47.97$, $p < .0001$. With the expected exception of the aptitude model, each of the regression models was also significant. Figure 1 illustrates the fully specified model with nonsignificant paths removed. Note that this is the full path model, and not a reduced model recomputed with nonsignificant relationships removed from the analysis. Figure 1 also shows the residual path coefficients (R) that represent factors affecting a specific variable but that are not measured or accounted for in the model (i.e., the square root of the unexplained variation in the dependent variable).

In the performance model, path coefficients from self-efficacy, apprehension, and aptitude were significant. It is worth noting that, in spite of the expected powerful effect of writing aptitude ($\beta = .398$)(in essence a pre-assessment of writing performance), the direct effect

of self-efficacy was nearly as strong (β = .344). Writing apprehension had the weakest significant direct effect (β = -.177). There was no significant effect of gender on either aptitude or performance; nonetheless, there were significant direct effects from gender on both self-efficacy (β = .147) and apprehension (β = .138). Curiously, although boys and girls did not differ either on their aptitude or assessed writing, girls reported lower confidence whereas boys reported higher apprehension. Additional t-test results also showed that girls reported significantly higher writing self-concepts. In other words, although the boys in our sample were more apprehensive about their writing and had poorer self-concepts about themselves as writers, they nonetheless believed themselves more capable writers.

Writing aptitude influenced self-efficacy strongly and directly (β = .433). Clearly, a student's aptitude is an important source of self-efficacy information. The strong indirect effect of aptitude on performance, primarily through self-efficacy, also suggests that aptitude influenced writing performance through its influence on students' judgments of their own confidence. Recall that aptitude scores were, in essence, teachers' judgments of students' writing capabilities. Consequently, students' beliefs about their own competence were influenced, at least in part, by their interpretation of the judgments of their teachers. Students' self-confidence had the hypothesized strong direct effect on writing apprehension--the more confident that students were in their writing ability, the lower their reported anxiety about writing. However, although apprehension and essay-writing performance has significant zero-order correlations (-.48), the path analysis demonstrated that the direct influence of apprehension on performance was weak. Instead, this influence was primarily a result of noncausal covariation.

The Role of Ethnic Background

Due to the absence of clear theoretical guidelines and prior research results, ethnic background was not included in the path analysis. However, Multivariate Analyses of Variance (MANOVA) results provided some insights regarding the relationship between this variable and those in the path model. The most pronounced differences were those between Hispanic and non-Hispanic White students across all variables. Hispanic students had lower aptitude and performance scores than did non-Hispanic White students, as well as lower writing self-efficacy and self-concept and higher apprehension. On the confidence measure, non-Hispanic Whites gave themselves a B average in confidence (82); Hispanic students gave themselves a D (64). Recall that none of the Hispanic students had been identified as Limited in English Proficiency (LEP) and all were native English speakers.

On the strength of these results, a path model was tested with ethnic background as a variable that, along with gender, was hypothesized to affect all other variables in the previous path model. For this analysis, ethnic background focused only on the difference between Hispanic and non-Hispanic White students. This decision was prompted by the low number of African American and Asian American students in our sample, by our special interest in the Hispanic subsample given the geographical location of the school, and by our belief that results would have more direct implications for teachers in similar locations. The regression model with performance as the outcome measure showed only a small 2% increase in R^2 (.55), however, suggesting that the effects of ethnic background were mediated, given the nature of its respective correlations, by aptitude and by self-efficacy. The R^2 for the path model with self-efficacy as the dependent variable increased from .21 to .27; R^2 for the aptitude model increased from .02 to .13.

Discussion

The primary aim of this study was to discover whether the self-confidence that first-year high school students had in their writing capabilities played the predictive and mediational role ascribed to it by social cognitive theory. Specifically, we used path analysis techniques to investigate the influence of writing self-efficacy, writing self-concept, and writing apprehension on students' essay-writing performance, using a model that controlled for the priorly determinant effects of gender and previously assessed writing aptitude. We were especially interested in whether self-efficacy beliefs would make an independent contribution to the prediction of writing performance given the expected powerful effect of the aptitude assessment. Our results indicate that students' self-efficacy perceptions are strong predictors of their writing performance and play the mediational role that social cognitive theory hypothesizes. Students' self-confidence in their own writing capability had a direct effect on their writing apprehension and essay-writing performance and partially mediated the effect of gender and writing aptitude on their apprehension and performance.

The roles of writing self-concept and writing apprehension were equally telling. First, it seems likely that these two constructs may be too similar to be empirically separable, and we recommend that a future study explore this possibility (see Pajares & Miller, 1994, for similar conclusion in a study of mathematics). Also, although students' writing apprehension and essay score were correlated, our path analysis results suggest that students' writing anxiety does not directly influence their performance. In fact, our results support Bandura's (1986) contention that anxiety is mediated by self-efficacy beliefs. That is, feelings of anxiety are a result of the confidence with which students approach a task. Similar findings have been reported by

researchers exploring writing or other academic areas (see Alexander & Martray, 1989; Hackett & Betz, 1989; Pajares & Miller, 1994, on mathematics; Meier et al., 1984; Pajares & Johnson, 1995, on writing).

Additional findings on ethnic background differences showed that the writing confidence and self-concept of Hispanic students were substantially lower than those of their peers. They were also more apprehensive about their writing. Hull and Rose (1989) argued that it is imperative to understand how affective factors influence the writing of "underprepared" students. If social cognitive theorists are correct that self-efficacy judgments influence the choices students make, the effort they expend, the perseverance with which they approach new tasks, and the anxiety they experience, then the low self-efficacy perceptions of the Hispanic first-year high-school students may provide additional insights as to why many of them become, and remain, "at risk"--why their academic achievement diminishes as they pursue their high school education and why a sizeable number of them eventually drop out of high school (see O'Hare, 1992). Differences in aptitude and performance demonstrated that a sizeable proportion of these students are poorer writers than their peers. Efforts to "remediate" their writing skills should prove difficult if educators fail to take into account the profound lack of confidence such students have developed as a result of previous experiences and of their present academic difficulties. Once entrenched, negative perceptions of one's ability prove exceedingly resistant to change, and even subsequent academic success, however brought about, often fails to alter them (Bandura, 1986; see Nisbett & Ross, 1980, on the perseverance phenomenon).

Two implications emerge. The first is that teachers should be endeavoring to prevent students from developing negative perceptions in the first place. Given the academic failure that

some students experience, this is a challenging task. Nonetheless, it is evident that a student should be able to face difficulties, or even fail, without losing the confidence required to try again and to improve. Scheier and Carver (1993) argued that, when students have little confidence in their capabilities, a sense of pessimism and "negative thinking" pervades their academic endeavors. Students with positive expectations that result from a strong sense of confidence approach tasks with optimism and continue to strive in the face of difficulty; those with low confidence and few expectations for success are more likely to withdraw their effort and simply give up on their goals.

The second implication is that teachers have the responsibility to increase students' competence and confidence. When academic difficulties erode students' confidence in their capability, it should prove difficult to improve their capability without altering their confidence. In such cases, confidence and competence must work in tandem, and improving one will require raising the other. Bandura (1986) argued that

> educational practices should be gauged not only by the skills and knowledge they impart for present use but also by what they do to children's beliefs about their capabilities, which affects how they approach the future. Students who develop a strong sense of self-efficacy are well equipped to educate themselves when they have to rely on their own initiative. (p. 417)

Schunk and his associates have provided insights on how this can be accomplished (see Schunk, 1989, 1991; Schunk & Cox, 1986; Schunk & Gunn, 1986; Schunk & Hanson, 1988).

Some self-efficacy researchers have suggested that teachers would be well served by paying as much attention to students' beliefs about their competence as to their actual

competence, for it is the beliefs that may more accurately predict students' motivation and future academic choices (see Hackett & Betz, 1989). Clearly, assessing students' self-efficacy can provide teachers with important insights. For example, mathematics researchers have demonstrated that self-efficacy beliefs strongly influence the choice of majors and career decisions of college students (see Hackett, 1985). In many cases, inaccurate perceptions of mathematics ability, and not lack of skill, are responsible for avoidance of math-related courses and careers. The same phenomenon may be at work with writing. If so, efforts to identify and alter inaccurate judgments should prove beneficial. And, if self-efficacy beliefs are a primary cause of variables such as writing apprehension, then interventions designed to improve writing by decreasing anxiety may be useful to the degree that they increase students' confidence in their writing ability.

Bandura (1986) argued that some overestimation of capability is useful because it increases effort and persistence. Many students, however, underestimate their ability. Students who lack confidence in skills they possess are not likely to engage in tasks in which those skills are required, and they will more quickly give up in the face of difficulty. We find it regrettable, for example, that the girls in our sample were as capable and wrote as well as the boys but, nonetheless, reported lower writing self-efficacy. We wonder if this is the case across academic areas at the high school level, and, if it is, why this difference in self-beliefs should exist in the face of equal capability and performance. In fact, we find it puzzling, but telling, that boys expressed higher confidence in their writing ability despite suffering from higher apprehension and poorer writing self-concepts (see Flynn, 1988, for a feminist perspective on gender issues in

writing). We recommend that our study be replicated at lower academic levels, especially those in which these sorts of self-beliefs begin to be created.

It is at this point important to caution the reader regarding the limitations of our study. First, path analyses, on which inferences of causality are made, are not without controversy (see Freedman, 1987). Although they are a powerful statistical tool with which to explore the nature of causal relationships in nonexperimental studies, they are at the mercy of the relationships hypothesized to exist before the model is constructed as well as of the completeness of the model the researcher ultimately constructs and tests. They reflect both the theoretical orientation of the researcher and the subsequent interpretations of the interplay among variables. These interpretations must be made cautiously. Moreover, the contribution of path analyses to theory testing lies not in proving a theory correct but in rejecting models that show a poor fit with obtained data (Kerlinger & Pedhazur, 1973). Regarding the completeness of the model, we believe that variables such as socio-economic status (SES) would have been strong predictors of academic performance and provided a strong control for the influence of self-efficacy. However, we did not have access to that information, and we recommend that subsequent studies include such variables to test our findings. Another limitation lies in the use of self-report instruments to assess the self belief constructs. We need not here review literature dealing with the limitations of self-report procedures, but all such limitations should be kept in mind as findings are presented and interpreted. Last, participants consisted of 181 ninth grade students from only one school. This is a modest sample size, as were the subsamples that we used in additional analyses. However, the strength of the findings obtained despite the sacrifice in the statistical power that resulted from the modest sample sizes suggests that our confidence in our findings is

justified. Design, methodology, and analysis were planned and executed to maximize generalizability of findings, but generalizing to other populations or settings should be done with discretion.

Findings from this study strengthen Bandura's (1986) claim that self-efficacy beliefs play an influential role in human agency, and they support the work of prior investigators reporting a significant relationship between students' sense of confidence in academic areas and their subsequent performance in these areas. The clear implication is that researchers and school practitioners should be looking to students' beliefs about their academic capabilities as important predictors of other affective variables and of academic performances and that efforts should be made to identify these beliefs and, where necessary and feasible, alter them, for they are important components of motivation and behavior (Schunk, 1989, 1991). This is consistent with McLeod's (1987) observation that, because writing is as much an emotional as a cognitive activity, affective components strongly influence all phases of the writing process. She urged researchers to explore affective measures with an eye toward developing a "theory of affect" to help students understand how their affective processes may inform their writing. Given our findings, it seems warranted that students' self-efficacy perceptions should play a prominent role in such a theory.

References

Bachman, J. G., & O'Malley, P. M. (1986). Self-concepts, self-esteem, and educational experiences: The frog pond revisited (again). Journal of Personality and Social Psychology, 50, 35-46.

Bandura, A. (1984) Recycling misconceptions of perceived self-efficacy. Cognitive Therapy and Research, 8, 231-255.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice Hall.

Beach, R. (1989). Showing students how to assess: Demonstrating techniques for response in the writing conference. In C. M. Anson (Ed.), Writing and response (pp. 127-148). Urbana, IL; NCTE.

Cook, T. D., & Campbell, D. T. (1979). Quasi-experimentation: Design and analysis issues for field settings. Boston: Houghton Mifflin.

Daly, J. A. (1978). Writing apprehension and writing competency. Journal of Educational Research, 72, 10-14.

Daly, J. A. & Miller, M. D. (1975a). The empirical development of an instrument to measure writing apprehension. Research in the Teaching of English, 9, 272-289.

Daly, J. A. & Miller, M. D. (1975b). Further studies in writing apprehension: SAT scores, success expectations, willingness to take advanced courses, and sex differences. Research in the Teaching of English, 9, 250-256.

Daly, J. A., & Wilson, D. A. (1983). Writing apprehension, self-esteem, and personality. Research in the Teaching of English, 17, 327-341.

Elbow, P. (1993). Ranking, evaluating, and liking: Sorting out three forms of judgment. College English, 55, 186-206.

Emig, J. (1979). The composing processes of twelfth graders. Urbana, IL: NCTE.

Faigley, L. (1990). Competing theories of process: A critique and a proposal. In R. L. Graves (Ed.), Rhetoric and composition (pp. 38-53). Portsmouth, NH: Heinemann.

Faigley, L., Cherry, R. D., Jolliffe, D. A., & Skinner, A. M. (1985). Assessing writers' knowledge and processes of composing. Norwood, NJ: Ablex.

Faigley, L., Daly, J. A., & Witte, S. P. (1981). The effects of writing apprehension on writing performance and competence. Journal of Educational Research, 75, 16-21.

Feather, N. T. (1988). Values, valences, and course enrollment: Testing the role of personal values within an expectancy-valence framework. Journal of Educational Psychology, 80, 381-391.

Flower, L. S., & Hayes, J. R. (1981). A cognitive process theory of writing. College Composition and Communication, 32, 365-387.

Flynn, E. A. (1988). Composing as a woman. College Composition and Communication, 39, 423-435.

Foster, D. (1983). A primer for writing teachers. Upper Montclair, NJ: Boynton-Cook.

Freedman, D. A. (1987). As others see us: A case study of path analysis. Journal of Educational Statistics, 12, 101-128.

Hackett, G. (1985). The role of mathematics self-efficacy in the choice of math-related majors of college women and men: A path analysis. Journal of Counseling Psychology, 32, 47-56.

Hackett, G., & Betz, N. E. (1989). An exploration of the mathematics self-efficacy/mathematics performance correspondence. Journal for Research in Mathematics Education, 20, 261-273.

Hairston, M. (1990). The winds of change: Thomas Kuhn and the revolution in the teaching of writing. In R. L. Graves (Ed.), Rhetoric and composition (pp. 3-15). Portsmouth, NH: Heinemann.

Hillocks, G. (1986). Research on written composition. Urbana, IL: ERIC/NCTE.

Hull, G., & Rose, M. (1989). Rethinking remediation: Toward a social-cognitive understanding of problematic reading and writing. Written Communication, 6, 139-154.

Kerlinger, F. N., & Pedhazur, E. J. (1973). Multiple regression in behavior research. New York: Holt, Rinehart, & Winston.

McCarthy, P., Meier, S., & Rinderer, R. (1985). Self-efficacy and writing. College Composition and Communication, 36, 465-471.

Marsh, H. W. (1992a). Content specificity of relations between academic achievement and academic self-concept. Journal of Educational Psychology, 84, 35-42.

Marsh, H. W. (1992b). SDQ III. Campbelltown, Australia: University of Western Sydney, Publication Unit.

McLeod, S. (1987). Some thoughts about feelings: The affective domain and the writing process. College Composition and Communication, 38, 426-435.

Meier, S., McCarthy, P. R., & Schmeck, R. R. (1984). Validity of self-efficacy as a predictor of writing performance. Cognitive Therapy and Research, 8, 107-120.

Multon, K. D., Brown, S. D., & Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. Journal of Counseling Psychology, 38, 30-38.

Nisbett, R., & Ross, L. (1980). Human inference: Strategies and shortcomings of social judgment. Englewood Cliffs, NJ: Prentice-Hall.

O'Hare, W. P. (1992). America's minorities: The demographics of diversity [Monograph]. The Population Bulletin, 47, No. 4.

Pajares, F., & Johnson, M. J. (1994). Confidence and competence in writing: The role of writing self-efficacy, outcome expectancy, and apprehension. Research in the Teaching of English, 28, 313-331.

Pajares, F., & Miller, M. D. (1994). Role of self-efficacy and self-concept beliefs on mathematical problem solving: A path analysis. Journal of Educational Psychology, 86, 193-203.

Pajares, F., & Miller, M. D. (in press). Mathematics self-efficacy and mathematical performances: The need for specificity of assessment. Journal of Counseling Psychology.

Reed, W. M., Burton, J. K., & Vandett, N. M. (1988). Daly and Miller's writing apprehension test and Hunt's t-unit analyses: Two measurement precautions in writing research. Journal of Research and Development in Education, 21(2), 1-8.

Scardamalia, M., Bereiter, C., & Goelman, H. (1982). The role of production factors in writing ability. In M. Nystrand (Ed.), What writers know: The language, process, and structure of written discourse (pp. 173-210). New York: Academic Press.

Scheier, M. F., & Carver, C. S. (1993). On the power of positive thinking: The benefits of being optimistic. Current Directions in Psychological Science, 2, 26-30.

Schunk, D. H. (1989). Self-efficacy and achievement behaviors. Educational Psychology Review, 1, 173-208.

Schunk, D. H. (1991). Self-efficacy and academic motivation. Educational Psychologist, 26, 207-231.

Schunk, D. H., & Cox, P. D. (1986). Strategy training and attributional feedback with learning disabled students. Journal of Educational Psychology, 78, 201-209.

Schunk, D. H., & Gunn, T. P. (1986). Self-efficacy and skill development: Influence of task strategies and attributions. Journal of Educational Research, 79, 238-244.

Schunk, D. H., & Hanson, A. R. (1988). Influence of peer-model attributes on children's beliefs and learning. Journal of Educational Psychology, 81, 431-434.

Shell, D. F., Murphy, C. C., & Bruning, R. H. (1989). Self-efficacy and outcome expectancy mechanisms in reading and writing achievement. Journal of Educational Psychology 81, 91-100.

Wolcott, W. (1989). Perspectives on holistic scoring: The impact of monitoring on written evaluation. Unpublished doctoral dissertation. University of Florida.

Table 1.

Zero-order Correlations Between Variables in the Study

	M	SD	1	2	3	4	5	6	7	8
1. GENDER	--	--	--							
2. ETHNIC BACKGROUND	--	--	.04	--						
3. AGE	14.6	0.59	.00	-.05	--					
4. APTITUDE	2.5	0.92	-.13	.37***	-.14	--				
5. APPREHENSION	60.4	12.74	.13	-.22**	.16*	-.37***	--			
6. SELF-CONCEPT	49.2	13.54	-.25**	.22*	-.22**	.38***	-.88***	--		
7. SELF-EFFICACY	75.9	20.27	.09	.39***	-.27**	.41***	-.47***	.51***	--	
8. PERFORMANCE	3.7	1.08	-.00	.43***	-.27**	.60***	-.48***	.47***	.60***	--

* $P < .05$. ** $P < .001$. *** $P < .0001$

Note. 1. For GENDER, girls were coded 0; boys were coded 1.

2. For ETHNIC BACKGROUND, Hispanic students were coded 0; non-Hispanic White students were coded 1. African American or Asian American students were not included in this analysis.

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Table 2

Decomposition of Effects from the Path Analysis

Effect	(Intercept) Parameter estimate	Standardized estimate	t	R^2
On writing aptitude	(2.62)			.02
of gender	-0.25	-.136	-1.83	
On writing self-efficacy	(48.92)			.19
of writing aptitude	9.63	.433	6.33***	
of gender	6.04	.147	2.15*	
On writing apprehension	(84.64)			.28
of writing self-efficacy	-0.26	-.410	-5.72***	
of writing aptitude	-2.56	-.183	-2.55*	
of gender	3.56	.138	2.11*	
On writing performance	(2.00)			.53
of writing apprehension	-0.15	-.177	-2.86**	
of writing self-efficacy	0.02	.344	5.33***	
of writing aptitude	0.47	.398	6.66***	
of gender	0.10	.045	0.82	

* $p < .05$. ** $p < .01$. *** $p < .001$

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Figure 1. Hypothesized path model representing relationships among variables predicting essay-writing performance.

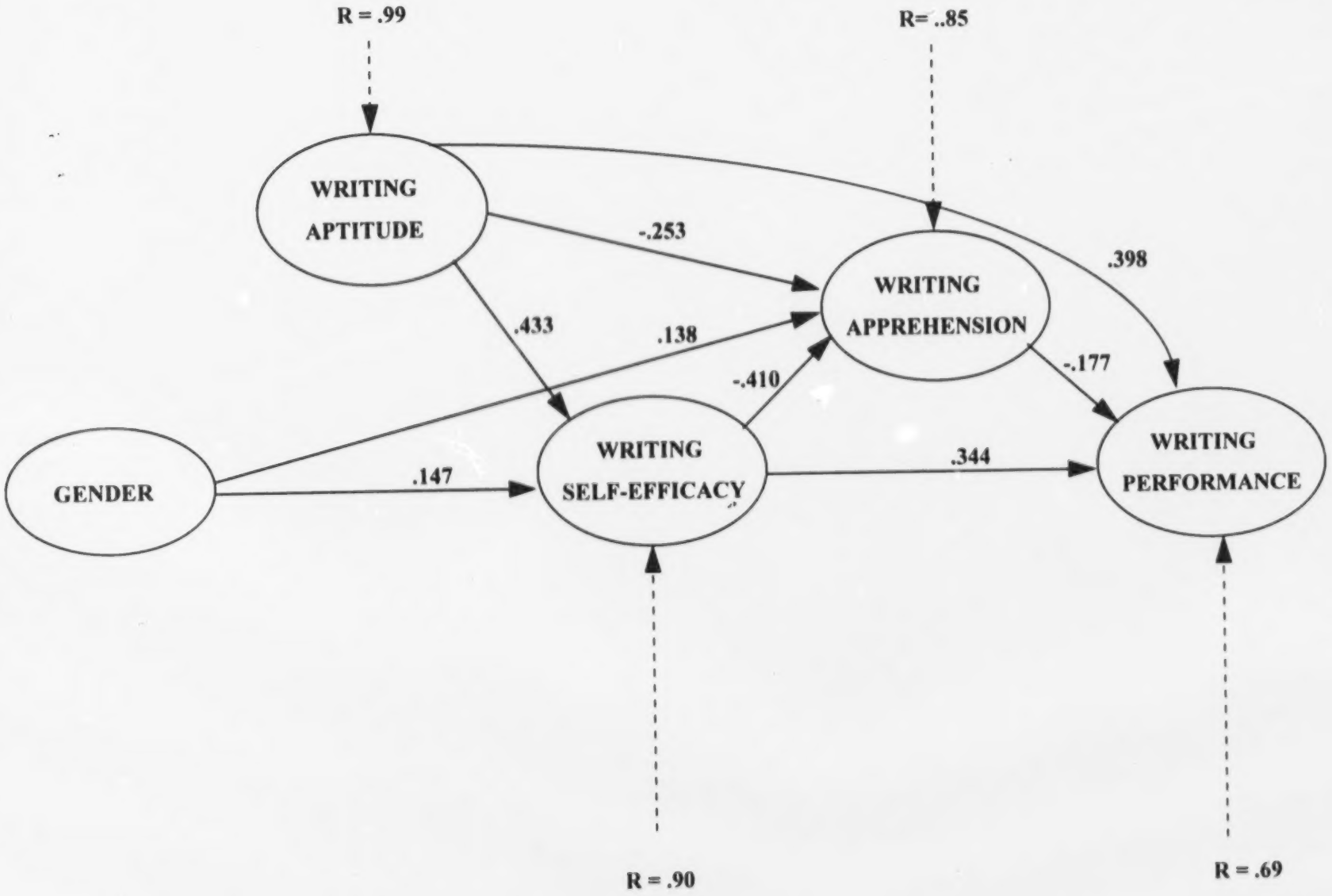

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Table 3

Direct and Indirect Effects on Writing Self-Efficacy and Essay-Writing Performance

Effect	*r*	Direct effect	Indirect effect	Total effect	Noncausal covariation
On writing performance					
of apprehension	-.481*	-.177*	.000	-.177*	-.304
of self-efficacy	.602*	.344*	.073	.417*	.185
of aptitude	.604*	.398*	.213*	.611*	-.007
of gender	-.001	.045	-.046	-.001	.000
On writing self-efficacy					
of aptitude	.415*	.433*	.000	.433*	-.018
of gender	.086	.136*	-.059	.077	.009

* $p < .05$.

Table 4

Mean Scores on Variables in the Study by Sex and Race/Ethnicity

Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*
	Women		Men			
	n = 102		n = 79			
Writing Aptitude	2.62	0.91	2.37	0.91		
Writing Apprehension	58.91	12.82	62.32	12.46		
Writing Self-Concept	52.38a	13.38	45.55b	12.82		
Writing Self-Efficacy	74.33	21.99	77.84	17.71		
Writing Performance	3.69	1.08	3.69	1.08		
	Black		Hispanic		Non-Hispanic White	
	n = 12		n = 52		n = 109	
Writing Aptitude	2.08a	0.67	2.04a	0.97	2.75b	0.82
Writing Apprehension	60.67	7.94	64.98a	13.03	58.53b	12.25
Writing Self-Concept	45.33	8.93	45.29a	14.62	51.46b	12.68
Writing Self-Efficacy	69.07	20.55	63.82a	25.98	81.63b	14.01
Writing Performance	3.55	0.86	2.95a	0.91	4.00b	1.00

Note. Means in the same row that do not share subscripts differ at $p < .05$ in the Tukey honestly significant difference comparison.

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